Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/RU2004/000205	International filing date *(day/month/year)* 27.05.2004	Priority date *(day/month/year)* 26.06.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant VINS, Viktor Genrihovich		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of _____ sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *(sent to the applicant and to the International Bureau)* a total of _____ sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/RU Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/RU2004/000205

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (Rule 12.3 and 23.1(b))

☐ publication of the international application (Rule 12.4)

☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

nos. _____ as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* _____ received by this Authority on _____

nos.* _____ received by this Authority on _____

☐ the drawings:

sheets _____ as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/RU2004/000205

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1	YES
	Claims		NO
Inventive step (IS)	Claims	1	YES
	Claims		NO
Industrial applicability (IA)	Claims	1	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 4950463 A

D2: RU 2145365 C

D3: EP 0615954 A1

D1 is the closest prior art. D1 describes a method for producing diamonds of purple colour with stable N-V colour centres, absorbing in the wavelength range 400-640 nm, by irradiation with a flow of electrons and annealing in a vacuum at a temperature equal to or greater than 1100°C.

The distinctive feature of the claimed invention consists in that a natural Ia type diamond is used, and in the crystalline lattice thereof isolated nitrogen atoms are formed in substitution position, viz. defect C, by means of high-temperature treatment in a high pressure apparatus at a temperature exceeding 2150°C at a stabilising pressure of 6.0-7.0 Gpa, performed before irradiation with a high energy electron beam with dose $5 \cdot 10^{15}$ to $5 \cdot 10^{18}$ cm^{-2} at 2 to 4 Mev when diamonds containing defect A are used, or by means of irradiation with a high energy electron beam with irradiation dose exceeding 10^{19} cm^{-2} when

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

high nitrogen natural diamonds are used, containing more than 800ppm of nitrogen impurities in the form of defects A or B1.

These distinctive features make it possible to create diamonds of a fancy red colour by producing stable N-V colour centres having absorption in the red band of the spectrum for wavelengths 400-640 mn in the crystalline lattice of a natural type Ia diamond.

D2 describes a method for producing diamonds, in particular of red-yellow hues by acting thereon by means of electron beams with an integral electron flow within the interval $5 \cdot 10^{15}$ to $5 \cdot 10^{18}$ cm^{-2}, and annealing in a vacuum at 300-1900°C.

D3 describes a method for producing diamonds of purple or red colour by using electron or neutron irradiation respectively with a dose of $2 \cdot 10^{15}$ to $5 \cdot 10^{16}$ cm^{-2} and $2 \cdot 10^{15}$ to $5 \cdot 10^{17}$ cm^{-2}, and subsequently annealing in a vacuum at 600-800°C.

Thus the above distinctive features of the claim are not known from the prior art, therefore the claimed invention meets the requirements of novelty and inventive step.

The claimed method for producing a fancy red colour is industrially applicable.